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BEHAVIORAL DRUG THERAPY

How are drugs used for behavior modification in pets?

A number of drugs are now being utilized to treat pet behavior problems. In order to determine if drug therapy might be a consideration, it is first essential to determine the diagnosis and cause of the problem. Drugs might be indicated when behavior techniques alone are unlikely to improve the problem, or where it might be difficult or dangerous to proceed without the aid of drugs. Drugs might also be in the best interest of the pet and owner when there is excessive anxiety or when there are underlying neurotransmitter imbalances that might be contributing to the behavioral signs. For some problems drug therapy can be an essential component of the treatment program (e.g. urine spraying, compulsive disorders) or may be indicated due to medical problems (e.g. epilepsy, hyperkinesis). While drugs can help improve the outcome for many behavioral cases, it is the behavior management program that is needed to obtain the desirable behavior and ultimately resolve the problem.

Which drugs are licensed for veterinary use?

To date, few of the drugs used in veterinary behavior have been approved for pets. In addition to sedatives, only clomipramine and selegiline (discussed below) have been approved for use in dogs in North America. Most of the drugs utilized in veterinary behavior therapy are human drugs, so that doses, side effects and applications for animals have been extrapolated from human use. Such drugs can be used under the supervision of your veterinarian but you may be required to sign a form acknowledging your informed consent for such use. Each behavior case needs to be handled individually. Medications are specific for each pet and must not be transferred to other pets in the home nor, of course, used by owners.



Do all behavioral drugs act by sedation?

Many of the behavioral drugs that have been used in the past are sedatives that have broad effects and side-effects. Recently behaviorists have been turning to human medications, which have effects that are more specific. For example, using anti-depressant medications, we can often treat panic and phobias without compromising social, play or exploratory behaviors.

What tests are required prior to drug use?

Before drugs can be considered, the pet should have a full assessment to rule out medical problems that might be contributing to the behavior problem, and to ensure that there are no contraindications for drug therapy. Prescreening laboratory tests include a general blood profile, urinalysis and blood count. Additional blood work including a thyroid profile or an EKG may be needed if a problem is suspected. For some drugs, monitoring may be necessary throughout the course of therapy.

What are the side-effects and contraindications?

Except for those drugs licensed for veterinary use, the side-effects, adverse effects and contraindications are for the most part, extrapolated from human literature. Since the number of pets treated with these drugs is relatively small, new problems may yet arise and each pet should be closely monitored for any undesirable or unexpected effects on health or behavior. For some drugs, the physical and behavioral effects seen in the first few days, whether problematic or desirable, may be a temporary side-effect that could resolve with ongoing therapy.

Antihistamines: how are they used in behavior therapy?

Antihistamines may be useful in behavior therapy for their antipruritic and sedative effects. They have been used in pets for sedation prior to car travel, for pets that are waking through the night, and for some forms of compulsive scratching and self trauma. Antihistamines are sedating, especially during the first few days of therapy, and are contraindicated in pets that might be prone to urine retention (e.g. prostate disease), glaucoma, thyroid disease, heart disease, or liver disease.

Anti-anxiety drugs

Depending on the type of drug utilized, anti-anxiety drugs may have an effect within hours of starting therapy, or may take a week or longer to achieve their effect. Side-effects vary with the type and class of drug being used, ranging from increased appetite and sedation to agitation with little or no sedation. Any anti-anxiety drug can reduce fear to such a point that some pets become more confident, bold and aggressive, especially with members of their own species.

What are benzodiazepines and how are they used?

For anxiety, urine marking, noise phobias, fear induced aggression, generalized fear, waking at night, and some panic disorders, anti-anxiety drugs such as the benzodiazepines (e.g. diazepam, alprazolam) might be used. Because of their short onset of action and relatively short duration, these drugs are primarily used for situations that might produce temporary anxiety, and less frequently for long term on-going problems. Because of potential dependency effects, gradual withdrawal is recommended after continuous therapy. Liver function should be monitored prior to, and during therapy because of potential liver damage, particularly in cats.

Benzodiazepines may cause sedation and appetite stimulation, and some pets might even become more agitated or anxious when therapy is first initiated. These effects usually resolve within a few days. Be certain to report any unexpected behavior changes, or any medical changes such as decreased appetite or vomiting to your veterinarian immediately.

What is buspirone and how is it used?

This is a relatively new anti-anxiety drug that is used for some forms of fear, anxiety and urine marking. It is non-sedating, does not stimulate appetite and has not been associated with major side-effects. As with other anti-anxiety drugs, buspirone may remove the inhibitions associated with fear and could lead to an increase in aggression. Buspirone may take several weeks to take effect and is therefore not useful for the treatment of temporary situational anxieties but may be used on a “as needed” basis.

What is propranolol and how is it used?

Recently, in human medicine it has been found that the heart drug, propranolol can be useful at reducing anxiety without causing sedation. The drug works by blocking some of the physical effects that accompany fear. The heart rate is slowed, blood pressure is lowered, and the tremors, sweating, or diarrhea that might be associated with fear are reduced. The theory is that if the pet cannot exhibit the physical effects of fear, the behavior signs are less likely to be exhibited. Propranolol should not be used in pets with heart, respiratory or liver problems.

Antidepressants: when are they used?

Most anti-depressants work by causing changes in a brain chemical called serotonin. This chemical is vital in transmitting signals between brain cells (neurotransmitter). However antidepressants may also affect other neurotransmitters such as noradrenaline so that the uses and side-effects may be somewhat different among the antidepressants. The only antidepressant licensed for veterinary use is clomipramine. It can be used for separation anxiety as well as compulsive and repetitive disorders, phobias and anxiety disorders. It is also licensed in Australia for use in cats with urine spraying. Antidepressants have also been used for urinary incontinence, sleep disorders and some forms of aggression. Occasionally tricyclic antidepressants such as amitriptyline may also be used in chronic painful or inflammatory conditions such as feline interstitial cystitis. These drugs are generally used on a long term basis. They take from several days to several weeks to reach full effect. Side effects may include a dry mouth, urine retention, sedation or constipation especially during the first few days of therapy. Additionally they may cause tachycardia, an increase in heart rate. If your pet has any evidence of heart disease, an electrocardiogram may be advisable prior to use.



A newer class of antidepressants known as selective serotonin re-uptake inhibitors include drugs such as fluoxetine and paroxetine. They are most useful for compulsive, anxiety, phobic and panic disorders, urine marking and perhaps some forms of aggression. They seldom cause sedation and have few side-effects, but may occasionally cause restlessness, agitation, insomnia, weight loss and gastrointestinal upset in humans. They can take up to a month to achieve therapeutic effect.

Progestins: when are they used?

The female hormones, progestins, has been used to treat a variety of behavior problems. They have a general calming effect, and can be used in the treatment of aggression, urine marking, and compulsive grooming. They are also used to reduce male behaviors such as marking and mounting. Progestins may lead to serious adverse effects including diabetes and suppression of the bone marrow, adrenal gland and immune system. Therefore, they are generally used only in those cases where no other treatment is likely to be effective.

Sedatives: when are they used?

Sedatives have generalized effects on behavior, causing primarily as the name indicates, sedation. They can be useful for the treatment of excessive vocalization, noise phobias, sleep disorders and to control the anxiety and excitability associated with events such as car rides, nail trimming or veterinary visits. They are also effective in preventing nausea, as anti-nauseants. They should not be used in patients with seizures, liver disease or heart problems, and can lead to a dry mouth or urine retention.

Stimulants: when are they used?

Stimulants such as methylphenidate are used for attention deficit disorders in people. Although rare, some dogs that have short attention spans, are difficult to train, display repetitive behaviors, or are extremely active and have difficulty settling down may also have attention deficit disorders. Since these drugs are stimulants they generally cause an increase in heart rate and activity level. However in hyperactive pets, they actually have the opposite effect, leading to a calmer pet with a slower heart rate.

Anti-convulsants: when are they used?

Anticonvulsants such as phenobarbital and some benzodiazepines, are used to control seizures. Since certain parts of the brain control behavior, it is likely that a seizure in these parts of the brain could lead to sudden and bizarre changes in behavior that come and go without any apparent stimulus. If a seizure focus is suspected to be the cause of unusual behavior, anticonvulsants may be effective. Anticonvulsants have also been used on their own, or in combination with other medications for some anxiety, panic and sleep disorders.

Selegiline: when is it used?

Selegiline is licensed for use in dogs in both Canada and the United States for the treatment of cognitive dysfunction syndrome (CDS) as well as the control of clinical signs of Cushing's disease. This is a condition where an overactive pituitary gland causes the adrenal gland to produce too much cortisone. Signs of cognitive dysfunction may be considered to be those of senility disorientation, decreased responsiveness to owners, altered sleep-wake cycles and house-soiling. The drug known as an MAOB inhibitor may help neurotransmission of dopamine and noradrenaline, which may decline with age. It may also help cognitive dysfunction by protecting brain cells, and decreasing free radicals (see handout on 'Behavior problems of older pets' for more details).

Natural remedies and supplements

This is a broad topic that includes a variety of therapeutic options including herbal remedies, homeopathic remedies, nutraceuticals and supplements, as well as therapeutic touch and acupuncture. There are no controlled studies to show that any of these treatments are effective in pets. The same might be said for most of the drugs mentioned above, but most of these have been proven to be effective in human behavior therapy. In addition, because these products contain "natural" ingredients, there can be great variation in purity, quality, level of activity, and efficacy from manufacturer to manufacturer and from batch to batch.

Ginkgo biloba

Ginkgo biloba may alter a number of neurotransmitter systems in the brain, including acetylcholine, serotonin and norepinephrine and may have antioxidant effects. It may be effective at enhancing blood flow to the brain. It may be useful for senior pets with cognitive decline.

Kava kava

Kava kava may aid in the relief of mild anxiety. In pets there have been no controlled studies but it has been recommended for anxiety, as a sedative or muscle relaxant or as a sleep aid, and for the treatment of overgrooming in cats. Kava should not be combined with other anti-anxiety medications. It may cause gastrointestinal upset and should be avoided in patients with liver disease.

St. John's Wort

St. John's form has been suggested as a natural alternative to antidepressants. There have been claims of its use in dogs and cats, but no controlled studies. There are the same contraindications as with other antidepressants. In addition, there may be increased sensitivity to sunlight. It is said to sedate, reduce anxiety, improve mood and sleep and reduce inflammation and may be useful in compulsive disorders. As with pharmaceutical antidepressants it has been suggested that a period of three weeks or longer may be required to achieve therapeutic effects.

Valerian

Valerian has been used as a natural "tranquilizer" and muscle relaxant in animals, but controlled studies are not available. Valerian is not meant to be used long term, but may have benefit as a treatment for helping pets sleep through the night, exposure to periodic stressors, such as travel, thunderstorm phobias, and acute anxiety. Several weeks may be needed to achieve success.

Melatonin

Melatonin is produced in the pineal gland and is secreted into the blood at high levels during the night and at low levels during the day. Melatonin may be useful to help dogs with sleep disorders and in the treatment of fears and phobias such as thunderstorm and fireworks phobias. It may be used alone or combined with other medications such as antidepressants.



Diet and Tryptophan

It has been suggested that a change in diet can also alter behavior. Although some reports indicate that there may be adverse effects of supplements and preservatives in pet foods, there is no evidence to support this premise. For the most part these additives increase the nutritional balance and safety of pet foods. In addition, one would expect more signs (e.g. dermatologic, gastrointestinal) than just behavioral changes if there were an adverse reaction to the food or one of its ingredients. An elimination diet (i.e. one that did not contain the suspected offending ingredients) could be used to test this hypothesis.

One common suggestion has been that a reduction of protein in the diet may lead to a decrease in aggression, but this has not been validated. In a recent canine study, the level of protein (high vs. low) in the diet or addition of l-tryptophan had no effect on fearfulness or hyperactivity but a combination of low protein diets with tryptophan supplementation were shown to lower territoriality scores while high protein diets without tryptophan supplementation were most likely to lead to dominance aggression.

Homeopathic and Bach flower Remedies

The basic principles of modern homeopathy is that like cures like. The theory is that a patient's symptoms can be cured by a product that would produce the same behavioral or physical symptoms in a healthy individual. The homeopathic remedy is prepared by repeatedly diluting the substance to render it non-toxic. Although the substance may be undetectable after dilution, the remedy is said to contain the vibrational energy essences that match the patterns present in the ailing patient. These remedies may be made from plants, minerals, drugs, or animal substances. Bach flower remedies are intended to improve the emotional state of the pet, using minute dilutions of plant essences. Rescue Remedy is a combination of 5 flower essences intended to counter panic following emotional or physical stress. Calms and Calms Forte are also combination homeopathic remedies that have been recommended as an alternative to

psychotropic drugs. Although there is no scientific evidence to support any claims of efficacy, the extreme dilution of the ingredients, are likely to render them entirely safe.

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INFORMED CONSENT FOR BEHAVIOR-MODIFYING DRUG USE

Pet's name: _____ Sex: _____ Age: _____

Owner name: _____

Owner address: _____

Telephone: _____

I , the undersigned, being the owner or duly authorized agent for the owner of the above animal, understand that the drug _____ has not been approved for use in dogs or cats.

I have been advised that the drug is being used on an extra label basis and I accept the consequences of its use. I will not hold the veterinarian responsible for any adverse effects, be they physical or behavioral, that might arise out of the use of this drug.

I have been advised of the potential side-effects and adverse effects of the medication, such as: _____ and will discontinue the use of the drug and contact my veterinarian or the after hours emergency hospital immediately should any adverse or unexpected effects be exhibited.

I understand that the following laboratory tests need to be performed prior to drug use: _____

I understand that these tests should be repeated on: _____

I understand that this drug may not alter the course of the behavioral problem, and that my animal may continue with the problem behavior and may injure itself, other animals or other people.

I hereby give my informed consent to the administration of this drug to my animal. I accept full responsibility, legal and financial for all actions that may occur from the use of this drug.

I have been advised that a follow-up examination or assessment is next due on: _____

Signed: _____ Date: _____