



MANHATTAN CAT SPECIALISTS

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Asthma

Specially designed inhalers may
help cats breathe easier.

Asthma in humans is a lower airway disease that causes people to cough and heeze, and limits their ability to exercise. These clinical signs occur because the airways in asthmatic humans are hyper-reactive, and may undergo spontaneous bronchoconstriction (narrowing) when exposed to certain stimuli. A remarkably similar condition exists in cats. Cats afflicted with asthma have increased mucus in their airways, airway inflammation, labored breathing, and wheezing. Although the condition was initially described in cats over 90 years ago, it is only in the last 5 years that the disorder has been diligently studied, resulting in new information that has lead to better therapeutic options for affected cats.

Clinical signs of asthma in cats may be acute or chronic. In acute cases, there is a history of sudden onset of labored breathing. In most cases, however, asthmatic cats are presented to veterinarians with a complaint of chronic coughing.

There are no simple laboratory tests that can diagnose feline asthma with 100% certainty. Radiographs (x-rays) provide the most information for veterinarians presented with a coughing cat. Radiographs help eliminate other causes of respiratory distress, coughing and wheezing, such as heart failure, pneumonia, lung cancer, and inhaled foreign bodies. Identification of thickened air passages (seen as "doughnuts" and "train tracks" on an x-ray) is the most important radiographic finding in a diagnosis of feline asthma. If the cat is stable and the veterinarian elects to obtain a sample of the lung secretions, the presence of large numbers of eosinophils, a type of white blood cell, is consistent with (but not specific for) a diagnosis of asthma.

Because the clinical signs of asthma (coughing, wheezing) are mainly due to constriction of the airways, it is tempting to limit the treatment of asthmatic cats to the use of bronchodilators (drugs that open up the airway passages). This strategy may work for cats with intermittent signs, but is less likely to work for cats with daily signs. Examination of the airways in humans with asthma demonstrates the presence of chronic, continuous airway inflammation, and it is suspected that the airways of asthmatic cats are similarly affected. For cats with daily symptoms, opening up the air passages with bronchodilators often is not enough. These cats require therapy designed to decrease the inflammation of the airways.

The most effective long-term treatment of feline asthma is high-dose corticosteroids. These drugs are anti-inflammatory, and they help in removing the inflammatory cells that surround the airways in affected cats. Humans that receive high-dose oral steroids often experience serious side effects that preclude their routine use.

Fortunately, cats are fairly resistant to the health-threatening side effects of corticosteroids. Prednisone, given at high doses for two weeks, and then slowly tapered down to every-other-day therapy, remains the most consistent, reliable, and effective treatment for asthma in most cats. Some cat owners, however, find it nearly impossible to orally medicate their cat. In this situation, an injectable, long-acting steroid may be given, however, this is a less desirable approach to treatment, as these injections can last anywhere from 3 weeks to 3 months, and may be associated with side effects such as transient diabetes. When the effects of the injection wear off, the clinical signs usually return.

Bronchodilators may be given in addition to the corticosteroids. Aminophylline, theophylline, albuterol, and terbutaline are some of the more common bronchodilators that can be given orally to cats. Drugs that stimulate the beta receptors (beta agonists) in the lungs (albuterol, terbutaline) are, by far, the most effective bronchodilators available, and many veterinarians use the injectable form of these drugs in emergencies, when cats are suddenly presented in severe respiratory distress. There is no reason why owners of cats who experience occasional, severe asthma attacks cannot be taught to administer terbutaline injections, under the skin, much the same way that insulin is administered to diabetic cats at home. Cats undergoing an attack often respond in 15 to 30 minutes after injection; a second dose may be required in severe attacks. Depending on the response, the owner may then decide if the cat needs to be seen by a veterinarian immediately or not.

For cats that cannot tolerate oral terbutaline, or for those who are on maximum doses of corticosteroids and terbutaline, another drug, cyproheptadine, may be added to the armament. Several years ago, it was discovered that serotonin, a substance found in the inflammatory cells surrounding the airways of asthmatic cats, causes constriction of the airways (in cats, but not humans). Experimentally, anti-serotonin drugs block the serotonin receptors in the lungs, preventing constriction of the airways. As for the effectiveness of this drug in a clinical setting, the jury is still out. This drug is an antihistamine that often causes an increased appetite in many cats. Indeed, appetite stimulation is the most common reason for prescribing this drug in cats. I have used this drug in asthmatic cats with some success, and feel that it is worth trying, since the only side effect (increased appetite) is easily managed and is not a health threat.

Cyclosporine is a powerful anti-inflammatory drug commonly prescribed in humans who have received an organ transplant. The drug helps prevent rejection of the transplanted organ. Cyclosporine modulates the immune system in a variety of ways, and may be beneficial in controlling the inflammatory response that occurs in the airways of asthmatic cats. This drug is very expensive, and the oral absorption of this drug is very unpredictable, necessitating close monitoring of the blood levels of this drug until a stable therapeutic level is achieved. Cyclosporine usage should be limited to those cats who are steroid-resistant, or whose signs are so severe and uncontrolled that euthanasia is being considered by the owner.

As a veterinarian specializing in cats, the lack of treatment options other than oral medication had been frustrating. Fortunately, a new therapeutic option has become available: administration of medication via inhaler. Metered dose inhalers (MDIs) are commonly used in asthmatic humans. They allow high concentrations of drugs to be delivered directly to the lungs, avoiding or minimizing systemic side effects. Inhaled drugs relieve symptoms of asthma much faster than oral or injectable drugs. The

inhalers are designed for people to coordinate the activation of the device during a slow, deep inhalation, for optimal lung delivery. Obviously, this cannot be controlled in children or in animals. Addition of a spacer allows the MDI to be used in children and pets. The spacer is a plastic chamber about the size of an inner roll of toilet paper. The inhaler fits on one end of the chamber, and a specially designed facemask attaches onto the other end.



To use the MDI in an asthmatic cat, the owner attaches the inhaler to the chamber and presses the inhaler twice to deliver the medication into the chamber. Doing it this way avoids disturbing the cat with the noise made by the activation of the inhaler. The owner places the mask end of the spacer over the cat's face and lets the cat breathe in and out about a dozen times.

Several drugs are available in inhaler formulation. Short acting beta agonists such as albuterol (brand name: Proventil; Schering-Plough; Ventolin; Glaxo Wellcome) may be used to immediately relieve bronchoconstriction in asthmatic cats. Salmeterol (Serevent; Glaxo Wellcome) is a long-acting beta-receptor agonist that takes a little longer to take effect (15 to 30 minutes), but lasts more than 12 hours. It is not recommended for an acute asthma attack, but may be used in conjunction with daily corticosteroid therapy.

Inhaled corticosteroids are the most potent anti-inflammatory drugs available. Their use in people has been shown to improve asthma control and normalize lung function. Systemic side effects are minimized because very little drug is absorbed into the bloodstream; most of the drug remains in the lungs, where it exerts its anti-inflammatory effects. There are many inhaled steroid preparations. Controlled clinical studies in cats are lacking, but anecdotal evidence suggests that these drugs hold promise for treatment of asthma in cats, and protocols for therapy with inhaled medications are just now being published. This new development allows owners of asthmatic cats, and veterinarians to "breathe a little easier".