Allergy Testing & Immunotherapy in Dogs

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Allergy testing is a way to get a positive diagnosis for atopy (inhalant dermatitis) and to a lesser extent for contact allergies. Scratching, licking the feet, chewing, and red irritated skin are all symptoms of atopy in the dog. Atopy is the name given to allergies that result from breathing in pollen, dust, or mold. Other than flea bite allergies, atopy is by far, the most common cause of allergies in dogs. When an allergy to a specific substance can be identified, the dog can receive immunotherapy (hyposensitization injections).

Types of allergy testing

There are two basic types of allergy testing. The most common is a blood test that checks for antigen-induced antibodies in the dog's blood. There are two standard tests that are used to test the blood. The first is called a RAST test (radioallergosorbent). The other is an ELISA test (enzyme-linked immunosorbent assay). Both of these tests are very similar, but many practitioners feel that the ELISA test gives more accurate results than the RAST test.

The other type of testing is intradermal skin testing. In this test, a small amount of antigen is injected into the skin of the animal and after a short period of time, the area around the injection site is observed to determine if the animal is allergic to the agent. The pros and cons of both tests will be discussed in greater detail later in this article.

> Allergy testing is performed to develop a specific therapy for the allergic animal.

Blood testing by RAST and ELISA

To perform either of these two tests to determine what substances an animal may be allergic to, a blood sample is drawn from a suspected atopic dog and sent into the lab. The blood is screened for a reaction to a broad range of allergens including pollens, dust, and molds that are common to the geographical area in which the dog lives. Tests for reactions against different foods and contact allergies such as cotton or nylon can also be done, although, the tests perform less accurately for these allergens. The testing generally takes several weeks.

Unfortunately, the RAST and ELISA tests have some inherent problems in their design. They were initially developed for humans and the circulating antibodies that they test for are different in dogs and cats than in people. The result is that there are a lot of false positives. In other words, the test results indicate that your animal is allergic to things that he is really not. For this reason, veterinary dermatologists may opt for intradermal skin testing. The RAST and ELISA tests, however, are used in special circumstances in which intradermal skin testing cannot be performed, such as:

- The skin is too unhealthy to test either due to infection or severe inflammation.
- Prolonged drug withdrawal for antihistamines and corticosteroids cannot be tolerated.
- The dog is very young.
- The dog is a show dog whose hair cannot be clipped.
- Intradermal skin testing is unavailable.
- The intradermal skin test (IDST) is negative, yet atopy is still suspected.
- As a screening test to limit the number of allergens tested for in intradermal skin testing.

Of all of the blood tests performed, the ELISA is the most accurate, and if a blood test must be used then this is the one the author recommends performing.

Intradermal skin testing

Intradermal skin testing is the gold standard of allergy testing for atopy. The animal is sedated, and an area on his side is shaved down to the skin. On this shaved area a small amount of antigen is injected into the dog's skin. This is done in a specific pattern and order so that if the dog shows a small raised reaction, the offending antigen can be identified. After a period of time (hours), the shaved area is examined to detect which antigens, if any, created a reaction. Reading the reactions and determining if they are large enough to create an allergic reaction in the dog is somewhat of an art. This is where having a veterinary dermatologist really pays off.

Successful identification and treatment of atopic dogs by this method is listed to be as high as 75%. This test works best if performed during the season when the allergies are at their worst and is not necessarily more expensive than blood testing. Animals to be tested must not have been treated with steroids or antihistamines for several weeks to months before testing. The exact time differs with the drug used and type of test performed.

The basics of all allergy tests

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The blood and intradermal skin tests have some similarities:

- These tests work best if performed during the season when the allergies are at their worst.
- Once the allergens for the dog are identified, an appropriate immunotherapy is manufactured for that specific dog, and treatment can begin. After the offending antigens are identified, then a mixture of these antigens can be formulated into a hyposensitizing injection. Depending on the type of agents used, these injections will be given over a period of weeks to months until the dog or cat develops immunity to the agents. After initial protection, an occasional booster may have to be given.
- Before any animal is tested for allergies, a complete diagnostic workup ruling out other potential causes of skin problems should be performed. Ectoparasites such as fleas or mites, fungal or yeast infections on the skin such as *Malassezia*, and chronic bacterial infections must be eliminated. In addition, the possibility of concurrent hypothyroidism must be ruled out.
- It is often recommended that animals be placed on a homemade or hypoallergenic diet for 12 weeks before undergoing testing to ensure that a food allergy is not the cause. After the cause of the skin problem has been identified as atopy, then it is time to do the test.

We will take this time to warn pet owners that if they are not committed to the necessary follow-up treatment, which involves numerous injections over a long period of time, or if the veterinarian does not offer immunotherapy (hyposensitization) as a treatment option, then all of these tests may be a waste of time and money.

Who should be allergy tested?

Allergy testing should be considered for any animal that is suffering from allergies that occur for more than four months out of the year, and or do not respond to traditional treatment. Due to the increased time and cost necessary to do skin testing, most mild cases of allergies are treated with a combination of avoidance, fatty acids, and antihistamines. Unfortunately, there are many animals that suffer from moderate or severe allergies that should be tested and treated, but are not.

One of the biggest impediments to animal testing is not the owner, but the veterinarian. To become proficient at allergy testing, a veterinarian must do it frequently. Many veterinarians are not comfortable with testing and offering hyposensitizing treatments, and therefore fail to recommend them as options for their patients. Many times, owners must search out a veterinary dermatologist or travel to a larger metropolitan area to find a veterinarian that will correctly perform the required testing and then follow up with the hyposensitization.

Allergy testing is rarely done to diagnose food allergies.

Summary

Allergy testing is the best diagnostic tool and the best road to treatment for dogs that are suffering from moderate and severe allergies. There are several different testing methods available and the intradermal skin testing is the one that is most recommended and performed by veterinary dermatologists, however, the blood testing available now is much more accurate than it was in the past. The hyposensitization injections have had good results in reducing the symptoms of allergies in many dogs.

References

Ackerman, L. Skin and Haircoat Problems in Dogs. Alpine Publications. Loveland, CO; 1994

Griffin, C; Kwochka, K; Macdonald, J. Current Veterinary Dermatology. Mosby Publications. Linn, MO; 1993.

Scott, D; Miller, W; Griffin, C. Muller and Kirk's Small Animal Dermatology. W.B. Saunders Co. Philadelphia, PA; 1995.

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