PEER REVIEWED

Prescription hypoallergenic foods may help more than just food allergy!

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The diagnosis of food allergy unfortunately is not performed by a quick laboratory test. There is no simple blood or skin test that can accurately make the diagnosis. Attempts have been made via skin testing, IgG/IgE serum testing, and hair and saliva testing all to no avail.[1] In fact, we keep coming back to the elimination diet and provocative challenge as the "gold standard" for accurately assessing food allergy in our patients. It has been shown that 90% of food allergy cases in either dogs or cats require a restrictive diet fed for 8 weeks;[2] 80% of food allergic dogs may respond within 5 weeks and in cats, 6 weeks.[3] But did you know that by also feeding a prescription hypoallergenic food to your atopic patients, you may be helping to reduce their atopic flareups?

First, a bit of collective information on food allergy and how it differs in dogs and cats. Food allergy incidence in dogs is unknown, possibly due to not being recognized by owners, use of inappropriate diets, lack of compliance, and/or inadequate length of a diet trial. It is reported to occur in 1-2% of the canine population and in 14-33% of dogs with skin disease.[4] Some dogs (33%) have clinical signs at <1 year of age.[5] There is no breed predilection, but German Shepherds, West Highland White Terriers, and Labrador and Golden Retrievers account for 40% of affected dogs.[6] Food allergy in cats may occur in 3-6% of cats with skin disease and in up to 21% of cats with pruritus, with the age of onset from 6 months to 12 years of age. There is no breed predilection, but one study found a third of food allergic cats to be Siamese or Siamese crosses.[7]

Dermatological clinical signs in dogs with food allergy may include pruritus of the face, feet, axilla, and perineum; recurrent pyoderma; and otitis externa (25% unilateral).[8] Non-cutaneous signs such as gastrointestinal issues to include vomiting, abdominal discomfort, frequent stools, and flatulence, as well as seizures,[9] erythema multiforme, lupoid onychodystrophy, vasculitis, and pemphigus may also be attributed to food allergy. In addition to pruritus, cats may experience eosinophilic granuloma lesions, miliary dermatitis, seborrhea, pyoderma (bacterial or Malassezia), and/or otitis. Non-cutaneous signs may include flatulence, diarrhea, vomiting, salivation, conjunctivitis, and/or sneezing.[10]

Since food allergy and atopy in both species can have the same clinical signs and often exist together, making a diagnosis may be difficult. A recent study[11] found 10 of 53 dogs with nonseasonal atopic dermatitis managed with a hydrolyzed prescription food and a 2-week course of prednisolone flared when challenged with their former diet after being weaned off prednisolone. This resulted in a diagnosis of "food-induced atopic dermatitis." Evidence in humans and now in dogs suggests that foods may trigger symptoms of atopy.[12] Cross-reactivity has been shown between certain pollens and foods as well as unrelated allergens such as house dust mite and shellfish.[13] Cross-reactivity also exists between certain food proteins (e.g., beef and venison, duck and other avian), but the clinical relevance to daily practice remains unknown. Due to cross-reactivity between pollens and foods, it may be prudent to advise a prescription hypoallergenic food for your atopic patients. A study of dogs allergic to house dust mites showed that they had fewer flareups when fed such a food (Hill's z/d).[14]

Choosing an elimination diet for food allergy testing requires knowledge of what the pet has eaten in the past, particularly if using a novel protein diet. Obtaining a thorough dietary history from the owner is essential and if former diets are unknown (such as in a rescued pet), a hydrolyzed protein diet may be the better option. Also, one needs to consider the age of the pet, as only a few prescription elimination foods are labelled for growth: for cats, Royal Canin PR dry, PD dry, PV dry; Rayne rabbit maintenance; and Blue Buffalo NP; for dogs, Royal Canin HP dry and PD dry, Rayne rabbit maintenance, and Blue Buffalo NP. Over-the-counter (OTC) "limited ingredient" diets are not suitable for use as elimination diets because up to 83% may contain ingredients not listed on the label.[15] Raw diets are also not suitable, as one study showed 78% of canine diets and 56% of feline diets contained other meat species.[16] For owners wanting to feed a vegetarian diet, Royal Canin Vegetarian was helpful in eliminating pruritus in 3 food allergic dogs that previously reacted to animal protein-containing diets.[17] Insect-based (mealworm) diets fed for 12 weeks in 7 dogs not only helped with pruritus, but also reduced transepidermal water loss, demonstrating improved skin barrier function.[18]

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SO, WHAT CAN YOU DO?

- *Consider a prescription elimination food in atopic patients to reduce flareups and achieve better control of clinical signs overall, but don't forget that food allergy can play a role in other systemic conditions.*
- *Choose a prescription elimination food, whether novel or hydrolyzed protein, or a supervised home-cooked diet and feed it for 8 weeks for food allergy diagnosis. When challenged with the offending protein or former diet, cats and dogs will flare immediately or within 7 or l4 days, respectively.*
- *OTC "limited ingredient" diets and raw diets are not suitable for food allergy testing.*
- *In young, growing patients, be sure the prescription food is labeled for growth.*
- *It is not worthwhile to advise an owner to avoid a certain protein when feeding OTC foods or treats, as up to 83% may contain ingredients not listed on the label.*

There is now a plethora of commercial novel prescription elimination foods to choose from. Most manufacturers, including Blue Buffalo, Royal Canin, and Rayne, perform PCR or ELISA-TEK testing during manufacturing and of the final product to detect contaminant proteins in their diets. Benefits of a novel protein diet include convenience, appropriate for feeding long-term, owners being able to obtain meats such as venison or rabbit to use as "treats" or supplement the commercially available product, multiple products available with the same novel protein if palatability of one product is an issue, and some owner's opinion that a novel protein diet is more "natural" than a hydrolyzed diet. Disadvantages may include availability and sustainability of the novel protein, many OTC diets now containing novel proteins so the pet has already been exposed to what was formerly "novel" for that pet, and undeclared proteins being found in one study of novel prescription foods.

Hydrolyzed protein diets, in which the long-chain proteins are cleaved to reduce allergenicity, are either soy (Purina HA, Royal Canin HP), salmon (Blue Buffalo HF), chicken (Hill's z/d), or poultry-feather (Royal Canin Ultamino)-based. However, up to 50% of chicken- or soy-allergic patients may still react to hydrolyzed protein diets containing either of those 2 proteins.[19] The benefits of a hydrolyzed protein diet include reduced allergenicity due to small molecular size (most are < 8kDa and <10kDa is preferred), convenience, and an ideal option when the dietary history is unknown. For Ultamino, 99% of peptides are < 6kDa; for z/d, average peptide size is <1kDa, with 7% > 5kDa; for HF, 97.3% <2kDa; and for HA, 8KDa. Disadvantages of hydrolyzed foods may include a reported incidence of diarrhea in 10% of patients on hydrolyzed diets and a bitter taste of the diet due to the pH of the hydrolysis process. Studies show that novel protein diets have the same efficacy as hydrolyzed diets, so the choice between the two remains one of veterinarian and owner preference. Home-cooked elimination diets using a novel protein are also suitable if done under veterinary supervision, as one study showed that when owners composed the diets, protein, minerals, and omega-3 levels were deficient and the calcium: phosphorus ratio was incorrect.[20]

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